

Official Amendment
Serial No. 10/056,610
Docket : MIO 0051 V2/40509.183

IN THE CLAIMS

This listing of claims will replace all prior versions, and lists, of claims in the application:

- 1-29. (canceled)
30. (currently amended) A method of encapsulating an integrated circuit comprising:
providing a semiconductor chip;
providing a laminate defining first and second major faces, said laminate including an
upper electrically conductive layer at said first major face, and an underlying resin
laminate substrate supporting said upper electrically conductive layer, and a lower
electrically conductive layer at said second major face;
forming at least one void in said laminate so as to extend from one of said major faces
through said upper electrically conductive layer into said underlying resin
laminate substrate, but not as far as said lower electrically conductive layer and
said second major face; and
encapsulating said semiconductor chip and said laminate with an encapsulant such that
said encapsulant extends into said void to contact said underlying substrate.
31. (canceled)
32. (currently amended) A method of forming a laminate to lock an encapsulant comprising:
forming a lower continuous conductive layer;
forming at least one continuous resin laminate layer over said lower continuous
conductive layer ;
forming a second resin laminate layer over said continuous resin laminate layer, so as to
define an underlying cavity;

Official Amendment

Serial No. 10/056,610

Docket : MIO 0051 V2/40509.183

forming a third resin laminate layer over said second resin laminate layer, so as to define a void portion over said underlying cavity;

forming a fourth resin laminate layer over said third resin laminate layer, so as to define a void portion over said void portion of said third resin laminate layer;

forming an upper conductive layer over said fourth resin laminate layer, so as to define a void portion over said void portion of said fourth resin laminate layer; and

forming a solder resist layer over said upper conductive layer, so as to define a void portion over said void portion of said upper conductive layer.

33. (currently amended) The method of claim 32, wherein said underlying cavity, said void portion of said third resin laminate layer, said void portion of said fourth resin laminate layer, said void portion of said upper conductive layer and said void portion of said solder resist layer are formed to collectively form a void.

34. (previously presented) The method of claim 33 further comprising:
placing a die over at least a portion of said solder resist layer; and
forming an encapsulant over said solder resist layer, over said die and in said void.

35-39. (canceled)

40. (currently amended) A method of encapsulating an integrated circuit comprising:
providing a die;
providing a substrate having at least one continuous lower conductive laminate layer and at least one resin layer over said continuous lower conductive laminate layer;
forming at least one upper conductive laminate layer over said at least one resin layer;
forming a void in said at least one resin layer and said at least one upper conductive laminate layer such that a portion of said void located in said at least one resin

Official Amendment

Serial No. 10/056,610

Docket : MIO 0051 V2/40509.183

layer is below a remaining portion of said at least one upper conductive laminate layer, wherein said void does not extend through said continuous lower conductive laminate layer;

placing said die over said at least one upper conductive laminate layer; and encapsulating said die by forming encapsulant over said at least one upper conductive laminate layer, over said die and in said void.

41. (currently amended) The method of claim 40, wherein said at least one upper conductive laminate layer is formed by forming a conductive layer over said at least one resin layer and forming a solder resist layer over said conductive layer.

42. (currently amended) The method of claim 40, wherein said void is formed by forming an underlying cavity in said at least one upper conductive laminate layer.

43. (previously presented) The method of claim 40, wherein said encapsulant is formed in substantially all of said void.

44. (previously presented) The method of claim 40, wherein said at least one resin layer is formed from bismaleimide triazine laminate.

45. (previously presented) The method of claim 40, wherein said at least one resin layer is formed from FR-4 epoxy-glass laminate.

46-49. (canceled)

50. (previously presented) The method of claim 33, wherein said void has a varying profile.

Official Amendment

Serial No. 10/056,610

Docket : MIO 0051 V2/40509.183

51. (previously presented) The method of claim 50, wherein said void having a varying profile is formed by a process selected from the group consisting of drilling, stamping, chemical etching, and combinations thereof.

52. (previously presented) The method of claim 50, wherein said void having a varying profile is formed having a T-shaped profile.

53. (currently amended) The method of claim 33, wherein said void extends into said resin laminate, but not entirely through said continuous resin laminate layer.